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AUTHOR	Spaulding, Robert L.
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ABSTRACT

Durham Education Improvement Program (EIP) seeks to counteract early stimulation deprivation with a classroom experience based on the reinforcement principles of social learning theory. The EIP classroom emphasizes both warm, personal attention from the teacher and carefully structured, concrete environments that invite exploration, language, and thought. Development of self control and intrinsic reinforcement through intellectual competence are classroom goals. A punishment is avoided except in cases of personal or property damage, and even then only consists of 3 to 5 minutes of isolation. Since teaching in an EIP classroom requires certain specialized skills, EIP teachers are trained in behavior analysis (through use of the Coping Analysis Schedule for Educational Settings) and reinforcement procedures. Initial program data (obtained through observations of behavior) show gains in socialization and readiness for academic instruction. Gains in intelligence have been noted for children who have been exposed to EIP programming for three years. Investigations will continue to assess the stability of behavioral changes. (MH)

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A Social Learning Approach to Early Childhood Education

Robert L. Spaulding

Duke University[1]

Normal children can be made to appear mentally deficient if they are raised in attics or deprived of reinforcing social interaction. If they remain thus restricted for several years, they will, in fact, become permanently disabled intellectually.

The children of America's poor have, figuratively and in some cases actually, been closeted and cut off from experiences which permit the development of the specific intellectual skills and concepts valued in the public schools. By comparison with their more fortunate counterparts in middle class America they frequently appear retarded. Through the passage of time and repeated failure in school many of these children realize a permanent disability.

The Durham Education Improvement Program is predicated on the assumption that these children need not be lost; that they need not experience

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[1] The Durham Education Improvement Program: A project of the Ford Foundation under the auspices of the Southern Association of Colleges and Schools whose Education Improvement Project is funded by the Ford and Danforth Foundations. The Durham EIP is jointly administered by Duke University, North Carolina College, Durham City Schools, Durham County Schools, and Operation Breakthrough, Inc.

failure after failure in a system of schooling devised for a past generation in a far different social context. If intelligence is, in part, a function of the quality of a child's experience, then an environment appropriate to the developmental needs of poverty's children will enhance intellectual and academic performance. The Durham EIP seeks to transform the school environment to suit these developmental needs of disadvantaged children.

EIP has taken the position that the most powerful force for promoting change in the school setting is the selective use of warm, personal attention by the teacher. The second most important feature of EIP's classes is the presentation of carefully structured, concrete environments which invite exploration, language, and thought. By the appropriate use of adult attention, and the proper pacing and sequencing of concrete experiences, it is hypothesized disadvantaged children will develop the social and intellectual characteristics valued in modern, technological America.

The Durham child from disadvantaged circumstances is expected to be able to learn two sets of adaptive responses -- those appropriate at home and those suitable to school. The reward system of the EIP classes favors self-control and the achievement of social and academic skills. In contrast to a home in which other responses such as being quiet, doing chores, and keeping out of the way are rewarded, the EIP child is rewarded for listening, thinking, generalizing, cooperating, and controlling his physical behavior. His speech is encouraged and focused by the selective attention of his teachers. Aversive control techniques favored by many teachers, since they usually result (in young children) in immediate compliance and passivity, are systematically eliminated. Only those actions of children likely to lead to serious injury or damage of property are punished, and punishment

is limited to social isolation for 3 to 5 minutes. Since most of the disturbing behavior in the classroom results from the child's use of peer oriented attention-getting techniques, the control methods of EIP teachers emphasize rewards for ignoring the negative attention-getting behavior of others and for cooperative productivity.

In the EIP classrooms the views of the social learning theorists are used to derive programs of behavior modification. Thus EIP teachers sometimes utilize food and extrinsic reinforcers to increase the desired behaviors of children who are not reinforced by adult attention. Eventual weaning from external reinforcers is accomplished by pairing concrete rewards with adult approval and by maximizing the opportunities of the children to learn academic skills which are valued and customarily reinforced in both the school and home cultures -- for example, skills of reading, mathematics, and standard English.

Wherever EIP school expectations derive from widely accepted social forms and find their justification in assisting the educational enterprise, EIP children are conditioned to respond appropriately by a judicious use of reinforcers. For example, sitting or cleaning up when requested to do so might be extrinsically rewarded. Whenever, in contrast, the desired behaviors are based upon intellectual characteristics valued by society, EIP teachers gradually withdraw external reinforcers and permit each child to discover his own sense of control and competence through intrinsic reinforcement. Achievement in reading or mathematics is strengthened by instructional techniques which permit a child to gain satisfaction both through a sense of competence and social recognition from classmates and parents. By a pattern of increasingly generalized reinforcement EIP teachers encourage

the development of internal standards and an adaptation to attenuated reinforcement schedules suitable to continued achievement striving in subsequent years in public schools.

Since EIP teachers are expected to identify several varieties of child behavior and attend or withhold their attention according to a prearranged treatment schedule, they must be trained to "read" the overt behavior of all the children in their classes. Not only must they be able to identify immediately each type of behavior displayed by a child as he copes with the school setting, but they must be ready to apply reinforcers appropriately to counter undesirable peer attention and other competing social forces.

Each child must be known to his EIP teachers in terms of his response history. Separate sets of performance expectations and reward schedules must be kept in mind by teachers so that each child will learn new behavior patterns suitable to the school situation and discontinue less useful coping techniques.

In order to bring this about, EIP teachers are trained in classroom behavior analysis and reinforcement procedures. An instrument of classroom behavior analysis (Coping Analysis Schedule for Educational Settings - CASES) has been developed for this purpose. Classroom research assistants provide continuous data on each child's classroom behavior and plot the changes that occur. Not only is it possible to record individual changes in a child's transactions with the classroom environment but reinforcements provided by the social agents encountered by each child are observed, coded, and analyzed. Feedback of these data to teachers provides a check on the treatment schedules planned for each child.

The curriculum presently structured in EIP classrooms is based upon the assumption that self-control is advantageous in both the social and the cognitive spheres. In EIP classes children are led by their teachers to explore a series of structured, concrete environments which emphasize mastery of motor function and symbols of English and mathematics. In the cognitive area, the EIP teacher is expected to utilize all available materials and media as she assists each child to arrive at his own mastery of the subject matter. She is to resist verbalizing generalizations herself and encourage children to provide names and possible generalizations for group consideration.

This method of instruction requires a thorough knowledge of available curricular materials and the structures of mathematics and English. EIP teachers are provided ample opportunity from consultants to learn how to prepare materials and utilize instructional media.

Children are grouped and regrouped for instruction and independent activities many times during the day and are encouraged to maintain control over their conceptual and social organization. Limits of freedom are set and re-set to maintain profitable environmental encounters. Children are gradually led to spend a greater and greater portion of time engaged in physical and academic programs designed to maximize their competence. Most of those who have experienced programming for two or three years attend to instruction voluntarily and remain in responsible, productive activity unsupervised.

Results after three years have shown that all but a few teachers in the project have been able to adapt new control techniques and shift from aversive control to reinforcement techniques as a predominant means of behavior management.

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Several case studies have been completed in EIP and a similar pattern of pupil behavior change has occurred in each case. The results obtained with an aggressive, disturbing boy are given in Figure 1.

(Insert Figure 1: Subject "E" figure about here)

The data given in Figure 1 show the percent of desirable and the total amount of attending behavior of this six year old boy during daily reading and mathematics small group instruction. During baseline the behavior of this boy became progressively worse with teacher "A" who taught both subjects. After 5 days another teacher took over the mathematics lessons for this small group (3) of disruptive boys. The second teacher "B" provided more structure (goals and limit setting) and more neutral attention than teacher "A." Affect and reinforcement procedures were similar in the behavior of both teachers during baseline. The effect of increased structure is dramatically shown in the baseline behavior of Subject "E" during mathematics instruction.

When reinforcement procedures (use of dramatic play materials and free time as a consequence of desirable behavior during reading and mathematics instruction) were introduced, along with increased structure after the 10-day baseline period both teachers were eventually successful in modifying the attending behavior of this particularly distractable boy.

Results obtained with passive, withdrawn children are equally encouraging and follow the same general pattern.

One may ask, however, whether these techniques are appropriate in dealing with a larger group such as an elementary school class.

In one EIP second grade classroom of 20 children freedom to engage in a choice activity was made contingent upon the prior occurrence of appropriate classroom behavior. For the choice activity time, a variety of dramatic play materials, games, and crafts was made available. These items had been suggested by the children themselves to ensure high preference level for the activities and games.

Data were taken prior to the introduction of choice activities to assess the percentage of time spent in desirable classroom behavior. Data were then taken three days after the opportunity for choices was put into effect, and again three weeks later to assess changes. During this time, inappropriate or unacceptable behavior by a child during the day would result in a loss of five minutes of his activity time. The materials and choice time were removed for one week and then reinstated; two days of data were collected during each of these four conditions.

A paper and pencil procedure was used to code the children's behavior. Data were taken for three minutes on each child twice a day at 10-second intervals, in a morning individual work time and in an afternoon group time. Observations were recorded according to desirable or inappropriate categories of behavior.

Figure 2 presents the percentage of time spent in desirable behavior under the four experimental conditions. It is obvious that during the first contingency time (Modification I), there was an increase in desirable behaviors for the classroom as a whole. These desirable behaviors decreased when the materials and choice opportunities were removed (Postmodification), then increased again when the contingency choice activity time was reintroduced (Modification II). Thus, this study demonstrates the successful utilization

of a behavioral management technique with a large number of children with a minimum amount of data to indicate the changes that occurred.

(Insert Figure 2 about here)

These classroom behavior data show gains in socialization and readiness for academic instruction. Gains in intelligence and academic achievement have tended to lag behind improved impulse control and the development of socially integrative skills. However, among children who have been exposed to EIP programming for three years substantial changes in intelligence have been noted. Figures 3 and 4 present mean I.Q.s for boys and girls in one class of rural disadvantaged children. Boys were significantly lower in mean intelligence than girls at age 5 and remain so at age 8. Both groups, however, show continuously rising I.Q.s with no apparent regression effects. Achievement gains parallel these intelligence changes.

(Insert Figures 3 and 4 about here)

In summary, the effects of EIP classroom behavior modification and instructional strategies are in line with expectations (Spaulding, 1968). During the next two years the stability of these changes, as well as the impact of improved techniques and programming will be investigated.

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Figure Captions

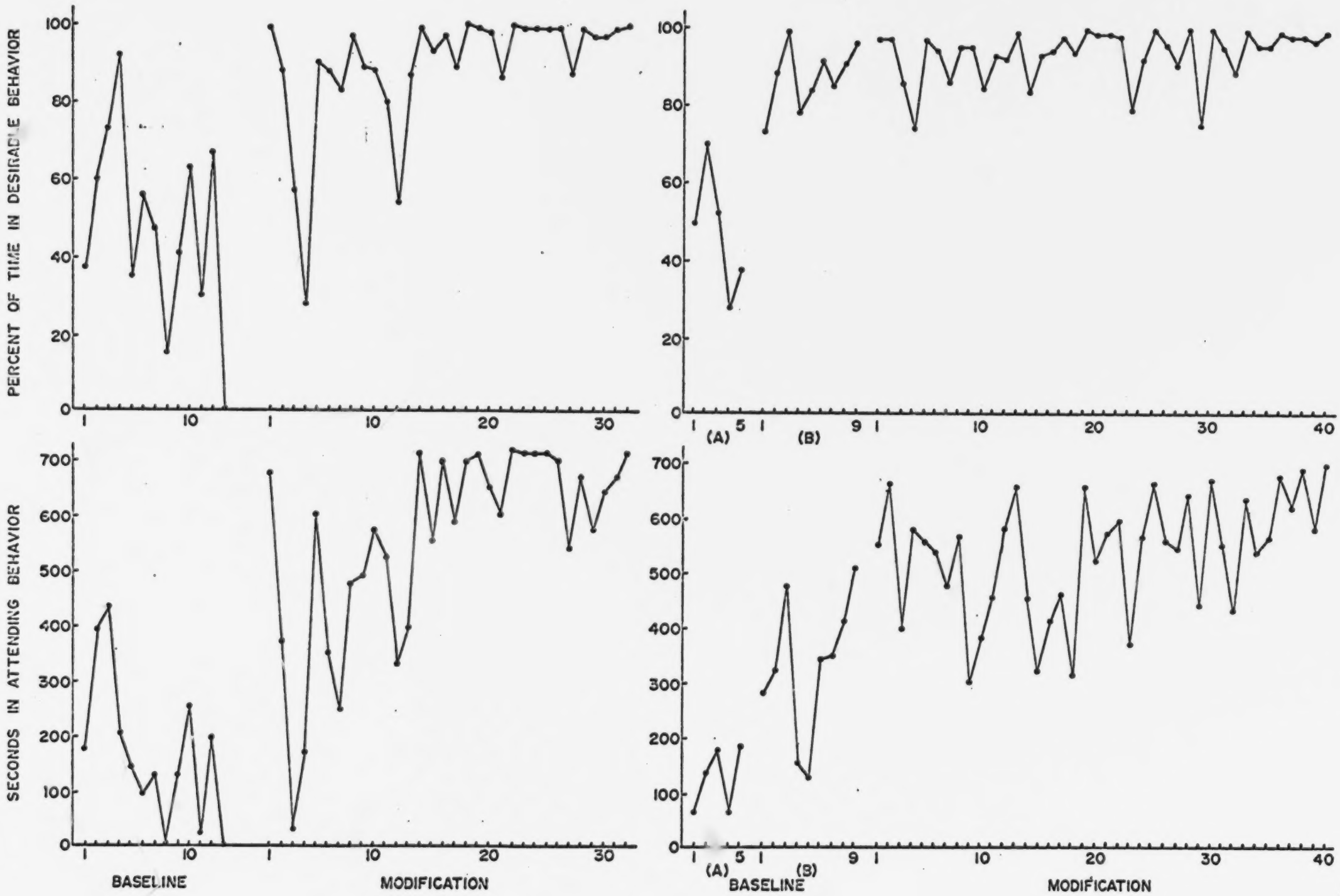
Figure 1. Results of behavior modification techniques with an aggressive and distractable six year old boy during reading and mathematics instruction (Wasik, 1968a).

Figure 2. Changes in the classroom behavior of 20 second grade children during four classroom conditions (Wasik, 1968b).

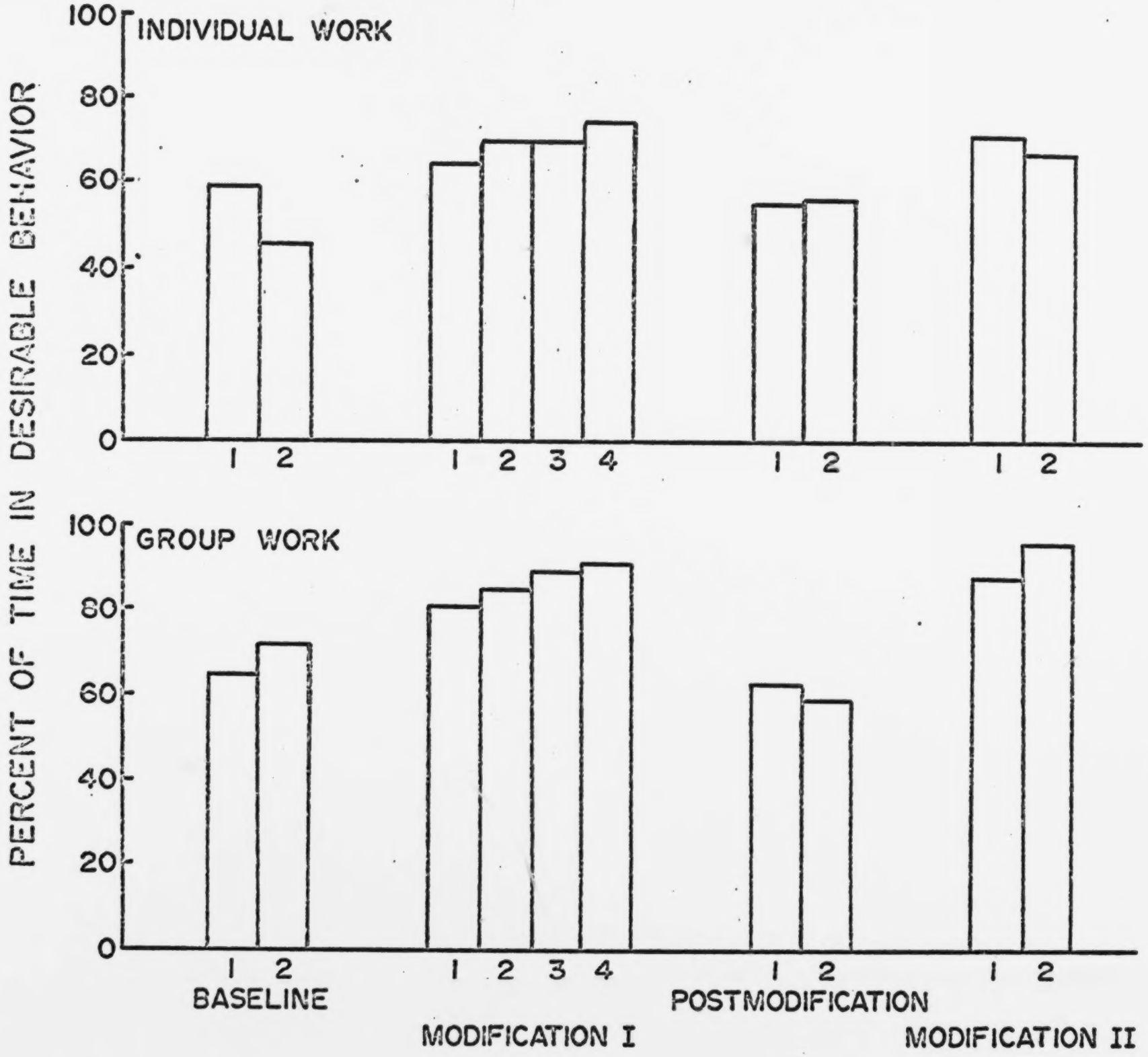
Figure 3. Changes in mean I.Q.s of eleven rural disadvantaged boys during three years in the Durham Education Improvement Program.

Figure 4. Changes in mean I.Q.s of twelve rural disadvantaged girls during three years in the Durham Education Improvement Program.

SUBJECT "E"

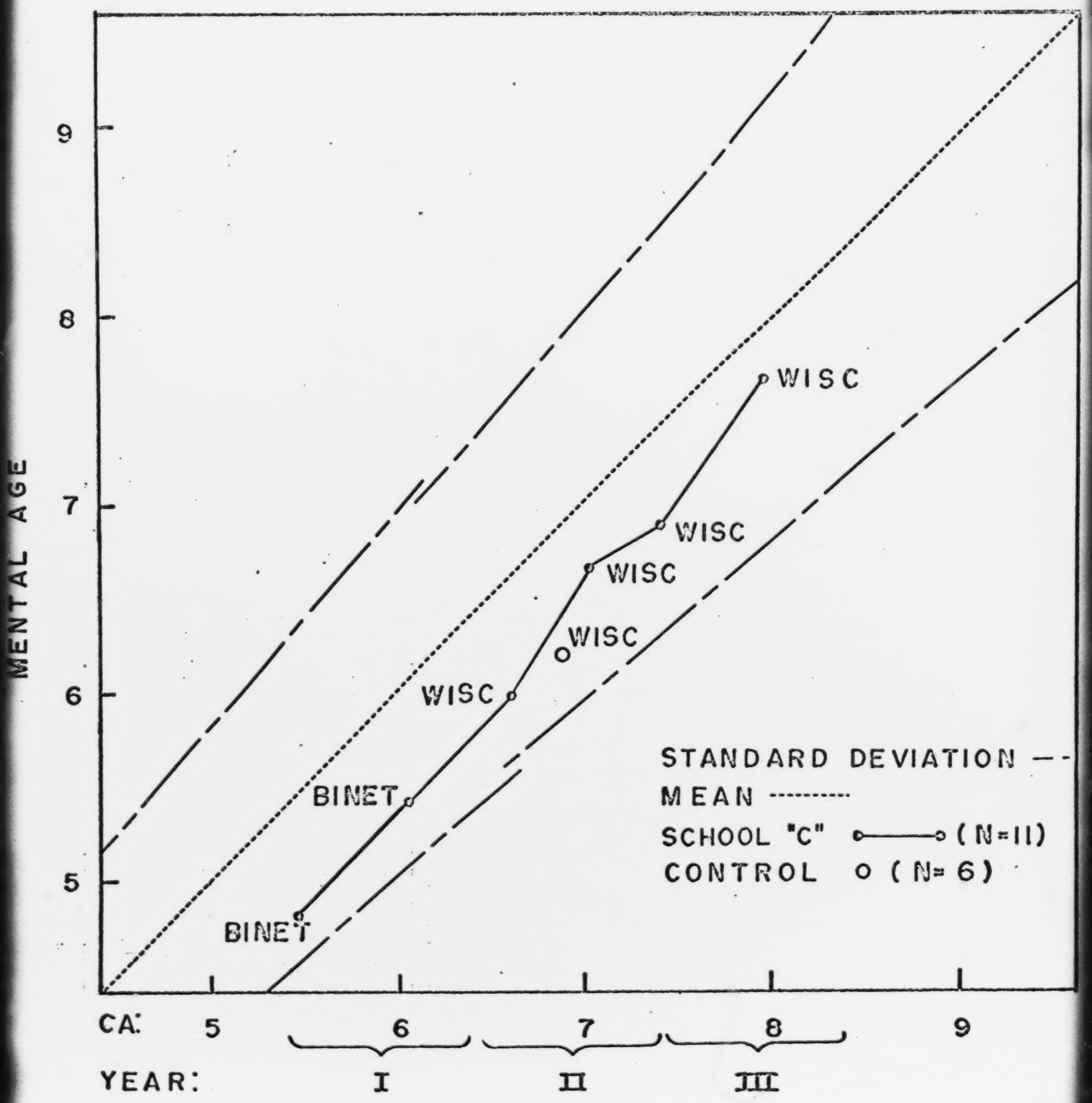


CONDITIONS BY DAYS


INDIVIDUAL WORK
GROUP WORK
PERCENT OF TIME IN DESIRABLE BEHAVIOR
100
80
60
40
20
0
1 2
1 2 3 4
1 2
1 2
BASELINE
MODIFICATION I
POSTMODIFICATION
MODIFICATION II
CONDITIONS BY DAYS

MEAN IQ BY PROGRAM YEAR AND TERM OF "031" BOYS

(PLOTTED ACCORDING TO MEAN CA AT THE TIME OF TESTING)



MEAN IQ BY PROGRAM YEAR AND TERM OF "031" GIRLS

(PLOTTED ACCORDING TO MEAN CA AT THE TIME OF TESTING)